

[Back](#)

Agricultural and Food Science - abstract



Vol. 15 (2006), No. 4, p. 414-422

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Quality and shelf life of packaged fresh sliced mushrooms stored at two different temperatures

Keywords modified atmospheres, minimal processing, sensorial and microbiological quality, sliced mushrooms,

Abstract

The sensory and microbiological quality of sliced mushrooms (*Agaricus bisporus* L.) packaged in films of perforated and non-perforated PVC and stored at 3 and 9 °C, was studied. The carbon dioxide and oxygen content inside the packages, colour, weight loss, sensory attributes, mesophiles, *Pseudomonas*, *Enterobacteriaceae*, aerobic and anaerobic spore formers were determined. The atmosphere generated with the perforated PVC film was similar to that of air atmosphere at 3 or 9 °C. The non-perforated PVC film generated inside the packages CO₂ : O₂ concentrations of 3.4% : 8.1% at 3 °C and CO₂ : O₂ concentrations of 4.5% : 0.15% at 9 °C. Browning of mushrooms was lower at 3 than at 9 °C. The quality of sliced mushrooms packaged in perforated PVC and stored at 3 °C was adequate after 9 days. However, at 9 °C, the slice deformation and brown blotches incidence were severe after 9 days. The atmosphere generated with non-perforated PVC inhibited aerobic microorganism growth compared to mushrooms packaged in perforated PVC. At 3 °C, the shelf life of mushrooms packaged in non perforated PVC was around 13 days. However, the extremely low O₂ atmospheres generated at 9 °C was accompanied by off-odours and growth of anaerobic spore formers, although the appearance of sliced mushrooms was acceptable.

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Update 21.2.2007.

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